Problem D

Divido Travel

There is a connected weighted graph with N vertices, numbered from 1 to N, and M edges, numbered from 1 to M. Edge i connects vertex U_i and vertex V_i bidirectionally with weight W_i.

You want to travel from vertex 1 to vertex 2, then from vertex 2 to vertex 3. You are allowed to visit any vertex or any edge more than once. The cost of your entire travel is the sum of the weights you passed through.

There is, however, a catch, in which every time you pass through an edge, its weight will be halved then rounded up to the nearest integer. Formally, if its weight is previously w, then it will change into $\lceil \frac{w}{2} \rceil$ after you pass through it.

Calculate the minimum cost of your entire travel.

Input

The first line contains an integer N and M ($3 \leq N \leq 100\ 000$; $N - 1 \leq M \leq 200\ 000$). Each of the next M lines contains U_i, V_i, and W_i ($1 \leq U_i < V_i \leq N$; $1 \leq W_i \leq 10^9$) describing an edge. The graph you are given contains no multi-edges.

Output

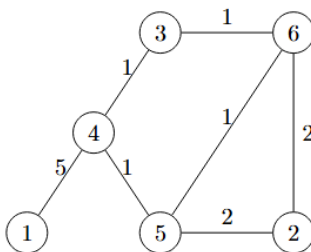Output the cost of your entire travel in a single line.

Sample Input 1	Sample Output 1
6 7 5 6 1 4 5 1 3 4 1 1 4 5 2 5 2 3 6 1 2 6 2	11

Explanation of Sample 1: The graph can be illustrated as follows.

You can travel from vertex 1 to vertex 2 by traversing the vertices $1 \rightarrow 4 \rightarrow 5 \rightarrow 2$. The weights of the traversed edges are changed into 3, 1, and 1 respectively.

Then, you travel from vertex 2 to vertex 3 by traversing the vertices $2 \rightarrow 5 \rightarrow 6 \rightarrow 3$. The cost of the entire travel is $5 + 1 + 2 + 1 + 1 + 1 = 11$.

Sample Input 2	Sample Output 2
3 2 1 2 265 1 3 265	663